

5 Patent Claims:

1. A conveyORIZED plating line for electrolytically metal plating workpieces, wherein means (17,18;21) are provided to reduce an electric voltage that builds up between adjacent workpieces (5,6,7) being conveyed through the line.

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2. The conveyORIZED plating line according to claim 1, wherein the means are at least one guard electrode (17,18) that is provided for in the line, in an entrance region for the workpieces (5,6,7).

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3. The conveyORIZED plating line according to claim 2, wherein the at least one guard electrode (17,18) substantially delimits the entrance region from a processing region for the workpieces (5,6,7) in which anodes (11) are disposed.

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4. The conveyORIZED plating line according to one of the claims 2 and 3, wherein the at least one guard electrode (17,18) is disposed in such a manner that it does not touch the workpieces (5,6,7) as they are being passed through the line.

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5. The conveyORIZED plating line according to one of the claims 2 - 4, wherein the at least one guard electrode (17,18) is cathodically polarizable relative to the anodes (11).

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6. The conveyORIZED plating line according to one of the claims 2 - 5, wherein the at least one guard electrode (17,18) is connected to a current source for electrolytic metal plating through at least one limiting resistor (19,20).

7. The conveyORIZED plating line according to claim 6, wherein the at least one limiting resistor (19,20) is adjustable.

8. The conveyORIZED plating line according to one of the claims 2 - 7, wherein the number, the shape, the spatial arrangement and/or the size of the at least one guard electrode (17,18) are determined in view of the reduction of the electric voltage between adjacent workpieces (5,6,7) in the line.

9. The conveyORIZED plating line according to one of the afore mentioned claims, wherein at least one current source providing an electric current flow to the workpieces (5,6,7) is provided, wherein electrical contacting members (9, 16) for the workpieces (5,6,7) are provided and wherein at least one electric compensating resistor (21) is provided for in a current path leading from the current source to the contacting members (9,16).

10. The conveyORIZED plating line according to claim 9, wherein the at least one current source is electrically connected to the electrical contacting members (9,16) for the workpieces (5,6,7) through current lines and a contact rail or brushes, at least one electric compensating resistor being mounted in series in proximity to the entrance region of the line and the contacting members being connected to either end of the at least one compensating resistor.

11. The conveyORIZED plating line according to one of the claims 9 and 10, wherein the at least one compensating resistor (21) is adjustable.

12. The conveyORIZED plating line according to one of the claims 9 - 11, wherein, if at least two contacting members (9,16) are provided, the compensating resistors (21) are adjustable in such a manner that the voltage drop is greatest in that compensating resistor (21) which is assigned to the first contacting member (9) as viewed in the direction of transport:

13. The conveyORIZED plating line according to one of the afore mentioned

claims, wherein, for contacting the workpieces (5,6,7) with the electrolyte fluid as they are being passed through the line, a space in which the electrolyte fluid accumulates is provided which the workpieces (5,6,7) can enter and which the workpieces (5,6,7) can exit again once they have been conveyed through the
5 line.

14. A method for electrolytically metal plating workpieces in a conveyORIZED plating line comprising feeding workpieces to the line, conveying the workpieces there through and exiting the workpieces said line again and
10 reducing an electric voltage that builds up between adjacent workpieces (5,6,7) being conveyed through the line.

15. The method according to claim 14, wherein the electric voltage between adjacent workpieces (5,6,7) in the line is reduced through at least one guard
15 electrode (17,18) being provided in the line.

16. The method according to claim 15, wherein the electric voltage is reduced through the at least one guard electrode (17,18) by the fact that it substantially delimits an entrance region in the line from that region in the line in which the
20 anodes (11) are disposed.

17. The method according to one of the claims 15 and 16, wherein the at least one guard electrode (17,18) is disposed within the line in such a manner that it does not touch the workpieces (5,6,7) as they are being conveyed through the
25 line.

18. The method according to one of the claims 15 - 17, wherein the at least one guard electrode (17,18) is connected to the negative pole of a current source providing an electric current flow to the workpieces (5,6,7).
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19. The method according to one of the claims 15 - 18, wherein the potential of the at least one guard electrode (17,18) is cathodically adjusted through at

least one limiting resistor (19,20) that is electrically connected to the negative pole of the current source.

20. The method according to one of the claims 15 - 19, wherein the number,
5 the shape, the spatial arrangement and/or the size of the at least one guard electrode (17,18) are determined in view of the reduction of the electric voltage.

21. The method according to one of the claims 14 - 20, wherein the electric
10 voltage between adjacent workpieces (5,6,7) in the line is adjusted through at least one compensating resistor (21) respectively, said compensating resistor being assigned to contacting members (9,16) for the workpieces (5,6,7).

22. The method according to claim 21, wherein the electric resistance of the at
15 least one compensating resistor (21) is adjusted in such a manner that the electric voltage between adjacent workpieces (5,6,7) is minimized.

23. The method according to claim 22, wherein, if at least two contacting
members (9,16) are provided, the compensating resistors (21) are adjusted in
20 such a manner that the voltage drop is greatest in that compensating resistor (21) which is assigned to the first contacting member (9) as viewed in the direction of transport.

24. The method according to one of the claims 14 - 23, wherein the workpieces
25 (5,6,7) are contacted with the electrolyte fluid as they are being passed through the line by having them enter a space in which the electrolyte fluid accumulates and by having them exit said space once they have been conveyed through the line.